WATER SUPPLY OUTLOOK
and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS
for
WASHINGTON

UNITED STATES DEPARTMENT of AGRICULTURE - SOIL CONSERVATION SERVICE
and
DEPARTMENT of CONSERVATION STATE of WASHINGTON

Data included in this report were obtained by the agencies named above in cooperation with the U.S. Forest Service, U.S. Geological Survey, National Park Service, and other Federal, State and private organizations.

AS OF
MAY 1, 1965

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Water Supply Outlook Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from advance estimates of the streamflow.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, up to 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

Streamflow forecasts are obtained by a comparison of total or maximum snow accumulation, as measured by snow water equivalent, to the subsequent spring and summer or snowmelt season runoff over a period of years. The snow water equivalent measured in selected snow courses provides most of the index to the streamflow forecast for the following season. More accurate forecasts are usually obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast procedure. Early season forecasts assume average climatic conditions through the snowmelt season.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions. Soil Conservation Service Reports may be secured from Soil Conservation Service, 511 N.W. Broadway - Room 507, Portland, Oregon 97209.

PUBLISHED BY SOIL CONSERVATION SERVICE

REPORTS	ISSUED	LOCATION	COOPERATING WITH
RIVER BASINS			
WESTERN UNITED STATES	MONTHLY (FEB.-MAY)	PORTLAND, OREGON	ALL COOPERATORS
BASIC DATA SUMMARY	OCTOBER 1	PORTLAND, OREGON	ALL COOPERATORS
STATES			
ALASKA	MONTHLY (MAR.-MAY)	PALMER, ALASKA	ALASKA S.C.D.
ARIZONA	SEMI-MONTHLY (JAN.15 - APR.1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO	MONTHLY (FEB.-MAY)	FORT COLLINS, COLORADO	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO	MONTHLY (JAN.-JUNE)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
MONTANA	MONTHLY (JAN.-JUNE)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
NEVADA	MONTHLY (JAN.-MAY)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN.-JUNE)	PORTLAND, OREGON	OREG. STATE UNIVERSITY OREGON STATE ENGINEER
UTAH	MONTHLY (JAN.-JUNE)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER
WASHINGTON	MONTHLY (FEB.-JUNE)	SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB.-JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER

PUBLISHED BY OTHER AGENCIES

REPORTS	ISSUED	AGENCY
BRITISH COLUMBIA	MONTHLY (FEB.-JUNE)	WATER RESOURCES SERVICE, DEPT. OF LANDS, FOREST AND WATER RESOURCES, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA	MONTHLY (FEB.-MAY)	CALIF. DEPT. OF WATER RESOURCES, P.O. BOX 388, SACRAMENTO, CALIF.

FEDERAL-STATE-COOPERATIVE
SNOW SURVEY AND WATER SUPPLY FORECASTS

For

WASHINGTON

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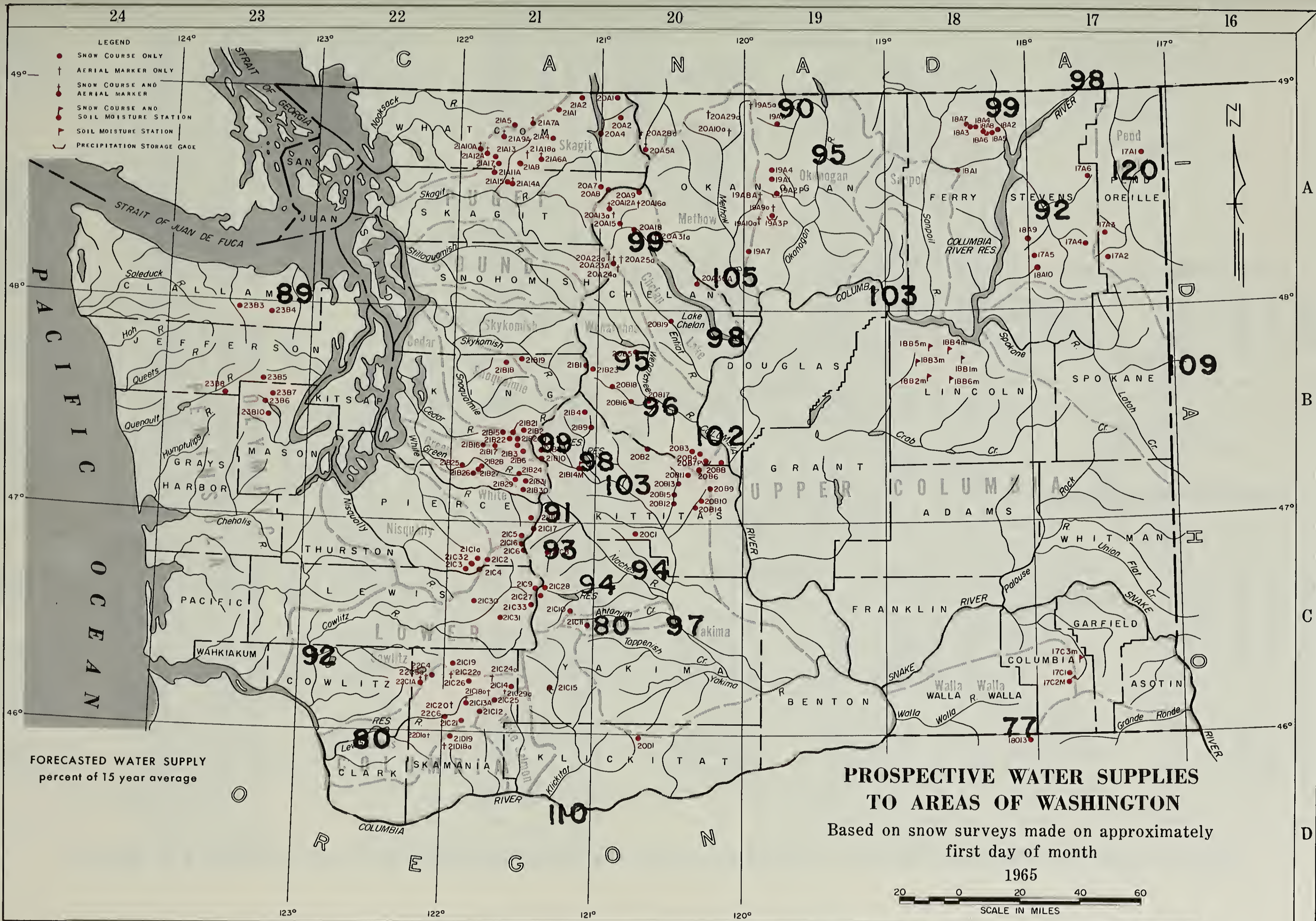
Department of Conservation
State of Washington



PROSPECTIVE WATER SUPPLIES TO AREAS OF WASHINGTON

Based on snow surveys made on approximately first day of month

1965

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS and PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE

Pend Oreille River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boyer Mountain	17A2	7	31N	43E	5250
Bunchgrass Meadow	17A1	24	37N	44E	5000
Winchester Creek	17A3	30	33N	43E	2970

Kettle River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Boulder Road	18A2	36	39N	36E	1450
Butte Creek	18A3	28	39N	35E	4070
Cabin Creek	18A8	5	38N	36E	3170
Goat Creek	18A4	26	39N	35E	3595
Snow Caps Creek	18A5	3	38N	36E	2150
Snow Caps Trail	18A6	5	38N	36E	2720
Summit G. S.	18A7	20	39N	35E	4600

Colville River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Baird	17A6	19	36N	42E	3215
Carlson	18A9	34	32N	38E	2885
Chewelah	17A4	11	32N	41E	4925
Stranger Mountain	17A5	26	31N	38E	4990
Togo	18A10	6	29N	38E	3370

Sanpoil River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Sherman Creek Pass	18A1	19	36N	35E	5350

Okanogan River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Clark	19A8a	2	36N	23E	7000
Muckamuck	19A9a	20	36N	24E	6750
Mutton Creek No. 1	19A1	30	37N	24E	5700
Mutton Creek No. 2	19A4	19	37N	24E	6000
Paysayten	20A28a	32	40N	18E	4300
Rusty Creek	19A3P	18	35N	24E	4000
Salmon Meadows	19A2P	33	37N	24E	4500
Starvation Mtn.	19A10a	15	35N	23E	6750
Touts Coulee	19A6	30	39N	25E	2845

Methow River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Billy Goat Pass	20A10a	10	38N	20E	6400
Dollar Watch	20A29a	8	39N	20E	7000
Harts Pass	20A5A	7	37N	18E	6500
Horseshoe Basin	19A5a	15	40N	23E	7000
Loup Loup	19A7	36	34N	23E	4650

Chelan Lake Basin

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Bridge Creek	20A15	20	34N	16E	2100
Bullion	20A18	2	33N	16E	1460
Cloudy Pass-	20A22a	12	31N	15E	6500
Greenwood Flat	20A25a	3	31N	16E	3540
Little Meadows	20A24a	8	31N	16E	5275
Lyman Lake	20A23A	18	31N	16E	5900
Park Creek Flat	20A13a	18	34N	16E	2220
Park Creek Ridge	20A12A	7	34N	16E	4600
Petersons	20A16a	3	34N	17E	3730
Rainy Pass	20A9	21	35N	17E	4780
Safety Harbor	20A30A	32	31N	20E	6300
War Creek Pass	20A31a	34	33N	18E	6500

Entiat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Brief	20B19	34	28N	19E	1600

Wenatchee River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Berne-Mill Creek	21B23	7	26N	15E	2925
Blewett Pass No. 2	20B2	35	22N	17E	4270
Chiwaukum G. S.	20B16	4	25N	17E	1810
Lake Wenatchee	20B5	33	27N	17E	1970
Leavenworth R. S.	20B17	1	24N	17E	1127
Merritt	20B18	4	26N	16E	2140
Stevens Pass	21B1	14	26N	13E	4070

Squilchuck Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beehive Springs	20B3	12	21N	19E	4400
Scout-A-Vista	20B4	18	21N	20E	3400

Stemilt Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Jump-Off	20B8	34	21N	20E	4450
Stemilt Slide	20B6	30	21N	20E	5000
Upper Wheeler	20B7P	30	21N	20E	4400

Crab Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Creston-Kunz	18B1m	32	27N	34E	2440
Govan	18B2m	20	26N	32E	2050
Jack Woods	18B3m	28	27N	31E	2750
Krause	18B4m	21	27N	33E	2420
Sheffels	18B5m	17	27N	32E	2378
Wheatridge	18B6m	24	25N	32E	2290

Yakima River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ahtanum R. S.	21C11	26	12N	14E	3100
Big Boulder Creek	21B9	35	23N	14E	3200
Bumping Lake	21C8	23	16N	12E	3450
Clockum Pass	20B9	25	20N	20E	5370
Cooke Creek	20B10	17	19N	20E	4123
Fish Lake	21B4	34	24N	14E	3371
Green Lake	21C10	3	12N	13E	6000
Grouse Camp	20B11	29	21N	19E	5385
High Creek	20B12	34	20N	19E	2930
Lake Cle Elum	21B14M	15	20N	14E	2200
Manashtash	20C1	24	17N	16E	3935
Morse Lake	21C17	6	16N	11E	5400
Nanum	20B13	4	20N	19E	3875
Trail Creek	20B14	20	19N	20E	3360
Tunnel Avenue	21B8	13	21N	11E	2450
Walters Flat	20B15	22	20N	19E	3360
White Pass	21C9	2	13N	11E	4500
White Pass (East Side)	21C28	2	13N	11E	4500
White Pass (Leach Lake)	21C27	1	13N	11E	4500

LOWER COLUMBIA DRAINAGE

Mill Creek

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Couse	17C3m	2	9N	35E	3370
Homestead	17C1	11	9N	40E	4030
Martin Springs (Helmers SM)	17C2M	23	9N	40E	4400
Walla Walla Diversion	18D13	22	6N	38E	2400

Klickitat River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Satus Pass	20D1	21	6N	17E	4030
West Fork Cabin	21C15	23	9N	12E	3000

White Salmon River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cultus Creek	21C12	35	7N	8E	4000

Lewis River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Blue Lake	21C22a	19	9N	8E	4800
Bob's Trail	21C21	25	8N	7E	2200
Calamity Ridge	22D1a	8	5N	5E	2500
Council Pass	21C18a	24	9N	9E	4200
Divide Meadow	21C29a	21	9N	10E	5600
Grand Meadow	21C25	28	8N	9E	3500
Lone Pine Shelter	21C26	8	9N	7E	3800
Marble Mountain	22C5a	24	8N	5E	3200
New Muddy River	22C6	36	8N	6E	2000
Oldman Pass	21D19	22	6N	7E	3100

Lewis River (continued)

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Plains of Abraham	22C1a	35	9N	5E	4400
Smith Creek Road	22C4	29	9N	6E	2100
Spencer Meadow	21C20a	16	8N	7E	3400
Surprise Lakes	21C13A	14	7N	8E	4250
Table Mountain	21C24a	20	9N	9E	4200
Timbered Peak	21D18a	36	6N	6E	3000

Cowlitz River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Cayuse Pass	21C6	15	16N	10E	5300
Mosquito Meadows	21C19	33	10N	7E	4100
Ohanapecosh	21C32	28	15N	10E	2200
Packwood Lake	21C31	21	13N	10E	2870
Pigtail Peak	21C33	11	13N	11E	5900
Potato Hill	21C14	36	10N	10E	4500
Willame Creek	21C30	3	13N	8E	3250

PUGET SOUND DRAINAGE

Nisqually River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Ghost Forest	21C4	23	15N	8E	4550
Longmire	21C3	29	15N	8E	2760
Paradise Park	21C2	13	15N	8E	5500
Stem Glade	21C1	13	15N	8E	5050

White River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Corral Pass	21B13	30	18N	11E	6000
White River Entrance	21C5	4	16N	10E	3600
White River Entrance (new)	21C16	4	16N	10E	3400

Green River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Airstrip	21B24	18	20N	11E	1800
Charley Creek	21B25	27	21N	8E	1200
Grass Mountain No. 1	21B26	21	20N	8E	4000
Grass Mountain No. 2	21B27	14	20N	8E	2900
Grass Mountain No. 3	21B28	12	20N	8E	2100
Lester Creek	21B29	36	20N	10E	3100
Sawmill Ridge	21B31	5	19N	11E	4700
Stampede Pass	21B10	25	21N	11E	3000
Twin Camp	21B30	18	19N	11E	4100

Cedar River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
City Cabin	21B3	10	21N	10E	2390
Mt. Gardner	21B21	30	22N	10E	3300
Mt. Gardner Aux.	21B22	31	22N	10E	2500
Mt. Lindsay	21B16	31	22N	9E	2500
Mt. Washington	21B15	8	22N	9E	3000
Rex River	21B17	11	21N	9E	2400
South Fork Cedar	21B6	24	21N	10E	3000
Tinkham Creek	21B20	1	21N	10E	3400

Snoqualmie River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Olallie Meadows	21B2	19	22N	11E	3625
South Fork Tolt	21B18	26	26N	9E	1900

Skykomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Lake Elizabeth	21B19	33	26N	10E	2900

Skagit River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Beaver Creek Trail	21A4	35	39N	12E	2200
Beaver Pass	21A1	9	39N	12E	3680
Devils Park	20A4	34	38N	16E	5900
Freezeout Creek Trail	20A1	14	40N	14E	3500
Freezeout Meadows	20A2	8	40N	16E	5000
Lake Hozomeen	21A2	19	40N	14E	2600
Meadows Cabins	20A8	29	36N	14E	1900
Thunder Basin	20A7	15	35N	14E	4200

Baker River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Dock Butte	21A11A	8	36N	8E	3800
Easy Pass	21A7A	19	39N	11E	5200
Jasper Pass	21A6A	17	38N	11E	5400
Marten Lake	21A9A	23	38N	8E	3600
Mount Blum	21A18a	27	38N	10E	5800
Rocky Creek	21A12A	20	37N	8E	2100
Schreibers Meadow	21A10A	18	37N	8E	3400
S. F. Thunder Creek	21A14A	20	36N	9E	2200
Sulphur Creek	21A13	22	37N	8E	1600
Three Mile Creek	21A15	18	36N	9E	1600
Watson Lakes	21A8	25	37N	9E	4500

Nooksack River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Panorama	21A5	17	39N	9E	4300

OLYMPIC PENINSULA

Dungeness River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Deer Park	23B4	1	28N	5W	5200

Elwha River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Hurricane	23B3	36	29N	7W	4500

Skokomish River

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.
Black and White	23B7	17	24N	5W	4200
Black and White Lakes	23B6	16	24N	5W	4700
Four Stream	23B10	1	23N	6W	3000
Home Sweet Home	23B5	28	25N	5W	5200
Sundown Pass	23B8	25	24N	7W	3900

LEGEND

NUMBERING SYSTEM EXAMPLE

21A7 SNOW COURSE ONLY

21A7a AERIAL MARKER ONLY

21A7A SNOW COURSE AND AERIAL MARKER

21A7M SNOW COURSE AND SOIL MOISTURE STATION

21A7m SOIL MOISTURE STATION

21A7P SNOW COURSE AND PRECIPITATION STORAGE GAGE

21A7p PRECIPITATION STORAGE GAGE

WATER SUPPLY OUTLOOK

State of Washington
May 1, 1965

* *
* The water supply outlook for irrigation and power in the State of *
* Washington is for adequate runoff during the 1965 spring snowmelt *
* season. There has been considerable deterioration of the snowpack *
* during the month of April at lower and middle elevations and only *
* a slight increase at higher elevations. The normal situation for *
* high elevations is a substantial increase in water equivalent dur- *
* ing the month of April. Precipitation in the state was generally *
* above normal while some of the surrounding tributary basins exper- *
* ienced well below normal rainfall. Runoff during the month of *
* April was normal or above on all major tributary streams as well *
* as the mainstem. Reservoirs have adequate amounts of water in *
* storage and are expected to fill with the spring runoff. *
* *

SNOW COVER

Many of the snow courses in the state and surrounding areas are not measured on the first of May because of the low elevation or it has been found that adequate information could be obtained from only April 1 reports. The snow courses that are measured have a great range when related to normal. Using just the courses that measured snow, the range was from 41% of normal to 198%. The Pend Oreille River has snow cover that averages 107% and ranges from 92% to 126%. The Kettle River measured by two courses averages 95%. The Okanogan has this above mentioned great range but averages 96%. The snow cover on the Methow is 87% and ranges from 95% to 74%. The other watersheds in the state all have similar snowpacks and similar ranges of individual snow course percentages.

RESERVOIRS

All reservoirs in the state reported, as of May 1, more water in storage with respect to normal except Banks Lake, Conconully Reservoir, Conconully Lake and Bumping Lake. While Conconully Reservoir and Lake are not expected to completely fill with spring runoff, adequate water should be available for irrigation purposes but holdover storage could be poor next year. The other mentioned reservoirs should fill with the spring runoff or have adequate water for all needs.

PRECIPITATION

The rainfall picture in the state and surrounding areas during the month of April was generally above normal. Only the Columbia River in Canada and the northwest slope of the Cascades reported an average of less than 100%. A few isolated stations reported extremely high rainfall, as much as 300% of normal, but this was not general throughout the state. The range of percentage of precipitation is from 27% of normal to the above-mentioned 300%.

SOIL MOISTURE

In the state, soil moisture is measured at only a few locations. Precipitation that occurred in the fall as well as valley precipitation later in the year are also indications of this soil moisture condition. Most of the soil moisture stations measured on the first of May indicate a little less soil moisture content in the soil mantle than in 1964 and 1963. There have been inadequate records on these stations to determine normals.

STREAMFLOW FORECASTS - MAY '965

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts.

Basin, Stream and Station	Forecast Runoff 1965	% 15-Yr. Avg.	Forecast Period	Seasonal Streamflow in Thousands of Acre-Feet: Measured Runoff 1964	1963	1962	15-Yr. Average 1948-62
COLUMBIA BASIN							
Columbia River System							
Columbia River at Birchbank 1/	41500	98	May-Sep	44217	38604	38085	42519
	32200	98	May-Jul	34170	28975	28269	33008
	22300	99	May Jun	21448	19469	18667	22475
Columbia River at Grand Coulee 1/	65450	103	May-Sep	66239	52072	54091	63335
	53500	103	May-Jul	54148	41073	42873	52003
	40500	105	May-Jun	38302	29427	31640	38569
Columbia River bl. Rock Island Dam 1/	70800	102	May-Sep	72608	56454	58923	69730
	59000	103	May-Jul	59531	44898	46818	57384
	44250	104	May-Jun	41916	32451	34499	42595
Columbia River at The Dalles,Ore.1/	104160	110	May-Sep	100902	76867	77872	94841
	87750	112	May-Jul	83876	61720	62212	78671
	68500	113	May-Jun	61986	46210	47596	60426
Pend Oreille River System							
Pend Oreille River bl. Box Canyon	17470	120	May-Sep	16702	9974	12003	14549
	15700	119	May-Jul	15035	8952	10893	13215
	13200	120	May-Jun	12446	7355	9448	11043
Kettle River System							
Kettle River nr. Laurier	1730	99	May-Sep	1885	1181	1340	1754
	1625	98	May-Jul	1661	1120	1254	1654
	1460	99	May-Jun	1442	980	1117	1477

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

Streamflow Forecasts - May 1965 (Cont'd)

Basin, Stream and Station	Forecast Runoff 1965	% 15-Yr. Avg.	Forecast Period	Seasonal Streamflow in Thousands of Acre-Feet: Measured Runoff 1964	1963	1962	15-Yr. Average 1948-62
Kettle River System (Cont'd)							
Colville River							
at Kettle Falls	110	92	May-Sep	62	71	81	119
	96	92	May-Jul	53	62	70	104
	85	93	May-Jun	47	55	63	91
Spokane River System *							
Spokane River							
at Post Falls,Ida.2/	2470	109	May-Sep			1763	2257
	2360	109	May-Jul			1679	2160
	2190	109	May-Jun			1572	2002
Okanogan River System **							
Similkameen River							
nr. Nighthawk	1400	90	May-Sep	1778	1140	992	1556
	1300	90	May-Jul	1629	989	909	1441
	1120	92	May-Jun	1266	773	763	1221
Okanogan River							
at Oroville 3/	421	98	May-Sep	358	199	229	430
	420	98	May-Jul	314	201	250	428
	404	99	May-Jun	284	169	246	407
Okanogan River							
nr. Tonasket	1710	95	May-Sep	1928	1150	1084	1804
	1540	95	May-Jul	1693	990	970	1618
	1290	96	May-Jun	1289	766	807	1350
Methow River System **							
Methow River							
nr. Pateros	1125	105	May-Sep		819	545	1069
	1040	105	May-Jul		743	482	987
	880	106	May-Jun		624	395	831
Chelan River System							
Chelan River							
at Chelan 4/	1200	98	May-Sep		853	789	1221
	1050	98	May-Jul		720	675	1070
	820	101	May-Jun		573	500	814

* Forecasts made by Morlan W. Nelson and J. Alden Wilson, Soil Conservation Service, Boise, Idaho.

** These forecasts are based in part upon base flow data especially prepared and furnished for the purpose by the U. S. Geological Survey.

2/ Observed flow corrected for storage in Coeur a'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage and diversions.

4/ Observed flow corrected for storage in Lake Chelan.

Streamflow Forecasts - May 1965 (Cont'd)

Basin, Stream and Station	Forecast Runoff 1965	% 15-Yr. Avg.	Fore-cast Period	Seasonal Streamflow in Thousands of Acre-Feet Measured Runoff 1964	1963	1962	15-Yr. Average 1948-62
Chelan River System (Cont'd)							
Stehekin River							
at Stehekin	850	99	May-Sep		644	632	861
	720	99	May-Jul		524	517	728
	545	102	May-Jun		405	370	535
Wenatchee River System							
Wenatchee River							
at Plain	1170	95	May-Sep	1364	758	859	1238
	1050	95	May-Jul	1191	668	756	1108
	830	97	May-Jun	820	551	571	854
Wenatchee River							
at Peshastin	1640	96	May-Sep	1812	1031	1183	1700
	1490	97	May-Jul	1597	915	1050	1535
	1180	99	May-Jun	1114	760	795	1191
Stemilt Basin							
nr. Wenatchee	100*	--	May-Sep			146*	--
Yakima River System							
Yakima River							
nr. Martin 5/	129	99	May-Sep	183	55	75	130
	119	101	May-Jul	162	50	67	118
	100	102	May-Jun	118	44	55	98
Yakima River							
at Cle Elum 6/	880	103	May-Sep		457	584	857
	800	104	May-Jul		397	509	772
	680	105	May-Jun		340	420	645
Yakima River							
nr. Parker 7/	1480	97	May-Sep		604	851	1533
	1480	98	May-Jul		624	843	1505
	1320	98	May-Jun		611	757	1343
Kachess River							
nr. Easton 8/	110	97	May-Sep	153	44	71	113
	105	99	May-Jul	139	44	65	106
	90	99	May-Jun	106	39	56	91

* Thousands of Miners' Inches.

5/ Observed flow corrected for storage in Lake Keechelus.

6/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal.

7/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.

8/ Observed flow corrected for storage in Lake Kachess.

Streamflow Forecasts - May 1965 (Cont'd)

Basin, Stream and Station	Forecast Runoff 1965	% 15-Yr. Avg.	Forecast Period	Seasonal Streamflow in Thousands of Acre-Feet: Measured 1964	1963	Runoff 1962	15-Yr. Average 1948-62
Yakima River System (Cont'd)							
Cle Elum River							
nr. Roslyn 9/	440	98	May-Sep	533	242	312	449
	400	98	May-Jul	475	220	281	407
	330	99	May-Jun	353	190	227	332
Bumping River							
nr. Nile 10/	135	93	May-Sep	156	73	101	145
	124	94	May-Jul	140	66	90	132
	102	96	May-Jun	99	58	71	106
American River							
nr. Nile	111	91	May-Sep	123	71	81	122
	102	91	May-Jul	111	65	73	112
	82	91	May-Jun	82	55	57	90
Tieton River							
at Tieton Dam 11/	227	94	May-Sep	217	144	169	242
	190	94	May-Jul	182	114	136	202
	152	98	May-Jun	127	94	98	155
Naches River							
nr. Naches 12/	770	94	May-Sep		476	544	823
	690	93	May-Jul		414	471	740
	580	95	May-Jun		356	375	608
Ahtanum Creeks							
nr. Tampico 13/	36	80	May-Sep	31	30	30	45
	32	80	May-Jul	27	27	26	40
	28	82	May-Jun	22	23	21	34
Lower Columbia River System							
Mill Creek							
nr. Walla Walla	17	77	May-Sep		12	16	22
	13	72	May-Jul		9	12	18
	11	73	May-Jun		7	10	15
Lewis River							
at Ariel 14/	825	80	May-Sep		676	765	1030
	680	79	May-Jul		557	622	866
	560	78	May-Jun		466	530	720
Cowlitz River							
at Castle Rock 15/	2050	92	May-Sep		1482	1820	2236
	1740	91	May-Jul		1204	1509	1902
	1400	92	May-Jun		972	1214	1526

9/ Observed flow corrected for storage in Lake Cle Elum.
10/ Observed flow corrected for storage in Bumping Lake.
11/ Observed flow corrected for storage in Rimrock Lake.
12/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.
13/ Observed flow of North and South Forks (combined).
14/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.
15/ Observed flow corrected for storage in Mayfield Reservoir.

Streamflow Forecasts - May 1965 (Cont'd)

Basin, Stream and Station	Forecast Runoff 1965	% 15-Yr. Avg.	Forecast Period	Seasonal Streamflow in Thousands of Acre-Feet: Measured Runoff 1964	1963	1962	15-Yr. Average 1948-62
OLYMPIC PENINSULA							
Dungeness River System							
Dungeness River nr. Sequim	141	89	May-Sep	120	109	158	
	114	90	May-Jul	92	85	127	
	82	90	May-Jun	64	59	91	

RESERVOIR STORAGE - 1000 Acre Feet

BASIN or STREAM	RESERVOIR 1/	USABLE CAPACITY	Measured (May 1) 1965	1964	1963	Normal*
			COLUMBIA			
Spokane	Coeur d'Alene Lake	889.0	524.3	241.9	181.8	347.7
Columbia	Franklin D. Roosevelt Lake	5232.0	3252.9	2984.0	2795.0	3088.2
Columbia	Banks Lake 2/	761.8	245.4	120.6	219.5	450.0
Okanogan	Conconully Reservoir	13.0	6.1	5.1	6.6	9.0
Okanogan	Salmon Lake	10.5	8.1	9.5	5.5	9.2
Chelan	Lake Chelan	676.1	369.3	121.8	357.9	239.2
			YAKIMA			
Yakima	Keechelus Lake	157.8	122.2	74.5	157.0	111.3
Kachess	Kachess Lake	239.0	215.7	172.0	241.2	200.5
Cle Elum	Lake Cle Elum	436.9	387.3	143.1	416.4	328.4
Bumping	Bumping Lake	33.7	17.6	4.6	34.3	21.0
Tieton	Rimrock Lake	198.0	182.3	79.7	198.1	149.9
			PUGET SOUND			
Skagit	Ross Reservoir 2/	1202.9	839.1	718.0	1094.9	511.2
Skagit	Diablo Reservoir	90.6	85.1	84.0	86.7	85.2
Skagit	Gorge Reservoir	9.8	7.8	8.2	7.5	--

1/ Based on Active Storage

2/ Less than 15-year record in period 1948-62

* 15-year average 1948-62

SOIL MOISTURE - MAY

Drainage Basin and Station	Number	Elev.	Profile (Inches) Depth	Profile (Inches) Total Capacity	Soil Moisture Content (Inches) as of May 1 1965	1964	1963
CRAB CREEK							
Creston-Kunz	18B1m	2440	48	13.6	10.49	10.79	11.00
Govan	18B2m	2100	48	13.6	Destroyed	11.38	11.91
Jack Woods	18B3m	2600	48	13.6	9.41	9.27	9.99
Krause	18B4m	2440	48	13.6	9 05	9.91	9.55
Sheffels	18B5m	2360	48	13.6	8.66	6.05	7.97
Wheatridge	18B6m	2200	48	13.6	8.38	7.93	8.73
OKANOGAN							
Trout Creek	3-M	3600	48	7.3	3 28*	4.37*	3.77*
YAKIMA							
Lake Cle Elum	21B14M	2200	48	12.8	9 03	9.12	12.30
WALLA WALLA							
Couse	17C3m	3650	48	11.1	10.79	9.63	9.63
Helmers	17C2M	4400	48	12.0	12 40	10.95	11.66

* April 1 measurement

FALL SOIL MOISTURE

Drainage Basin and Station	Number	Elev.	Profile (Inches) Depth	Profile (Inches) Total Capacity	Soil Moisture Content (Inches) as of Oct. 1 1964	1963	1962
CRAB CREEK							
Creston-Kunz	18B1m	2440	48	13.6	5.43	5.12	9.40
Govan	18B2m	2100	48	13.6	Destroyed	5.79	9.95
Jack Woods	18B3m	2600	48	13.6	4.44	6.26	7.06
Krause	18B4m	2440	48	13.6	5.89	5.23	9.47
Sheffels	18B5m	2360	48	13.6	3.69	3.69	6.69
Wheatridge	18B6m	2200	48	13.6	4.10	4.50	7.49
OKANOGAN							
Trout Creek	3-M	3600	48	7.3	3.34	3.23	2.80
YAKIMA							
Lake Cle Elum	21B14M	2200	48	12.8	8.80	6.63	6.80
WALLA WALLA							
Couse	17C3m	3650	48	11.1	5.62	5.73	7.20
Helmers	17C2M	4400	48	12.0	6.01	5.75	7.60

PRECIPITATION 1/

Division Averages and Departures

DRAINAGE DIVISIONS	FALL Sept-Nov. 1964 2/ Observed	Departure	WINTER Dec.'64-Feb.'65 2/ Observed	Departure	SPRING Mar-April '65 2/ Observed	Departure
Columbia in Canada	7.56	+ 1.19	9.09	+ 0.30	1.23	- 1.75
Pend Oreille - Spokane	7.25	- 1.68	14.55	+ 2.36	3.89	- 1.12
Northeastern Washington	4.75	- 0.56	8.67	+ 1.39	1.86	- 1.13
Southeastern Washington	6.25	+ 0.38	10.89	+ 2.90	3.39	- 0.53
Central Washington	9.23	- 2.64	22.65	+ 3.95	3.24	- 2.39
North Central Washington	2.84	- 0.19	5.51	+ 0.82	1.65	- 0.12
Northwest Slope Cascades	21.73	- 2.31	37.39	+ 3.94	7.85	- 5.64
Southwest Slope Cascades	14.44	- 3.15	31.30	+ 5.17	4.94	- 5.67
Blue Mountains, Oregon	4.30	- 0.42	13.54	+ 6.31	2.70	- 0.75
Lower Columbia in Oregon	4.25	- 0.75	12.26	+ 4.08	1.89	- 1.26

Northeastern Washington - Lower Spokane, Colville, Sanpoil and lower Kettle drainages

Southeastern Washington - Touchet, Tucannon and Palouse drainages

Central Washington - Yakima, Wenatchee and Chelan drainages

North Central Washington - Methow and Okanogan drainages

Northwest Slope Cascades - Puget Sound drainages

Southwest Slope Cascades - Lower Columbia drainages

1/ - Preliminary analysis by U. S. Weather Bureau from data furnished by Meteorological Services of Canada and U. S. Weather Bureau

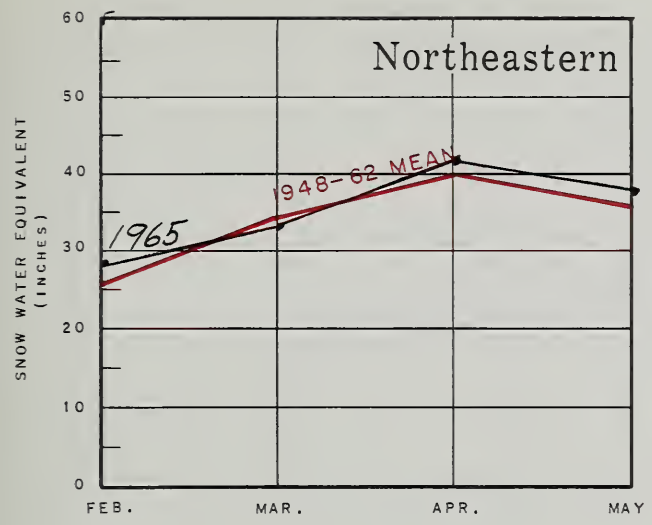
2/ - Departure from 15-year (1948-62) drainage division average

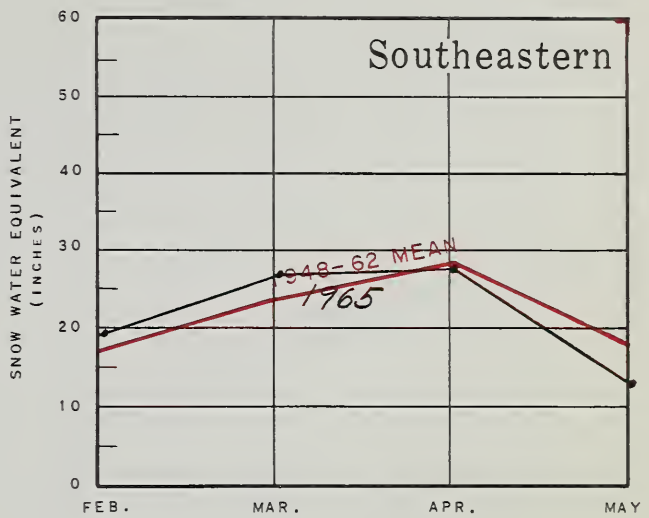
Note - Precipitation shown in inches

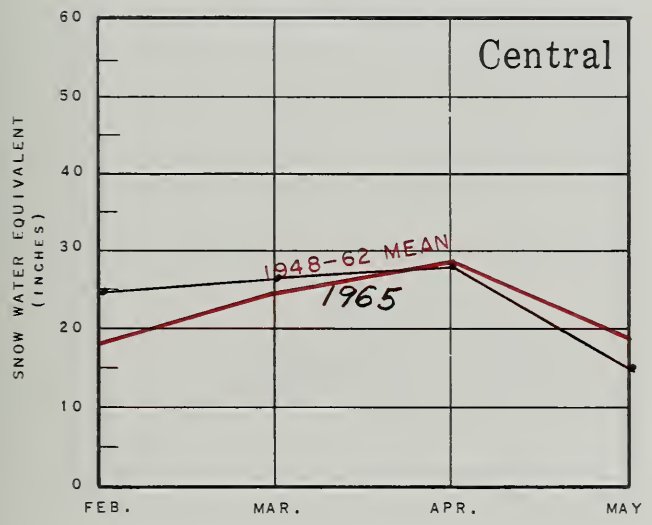
WASHINGTON SNOW COVER

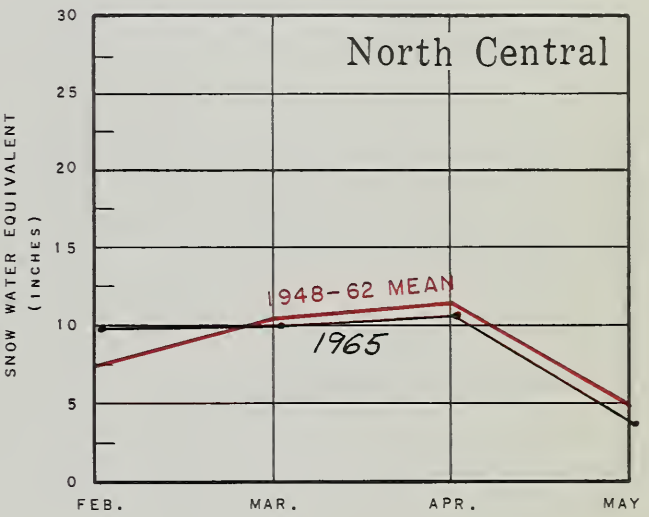
1965

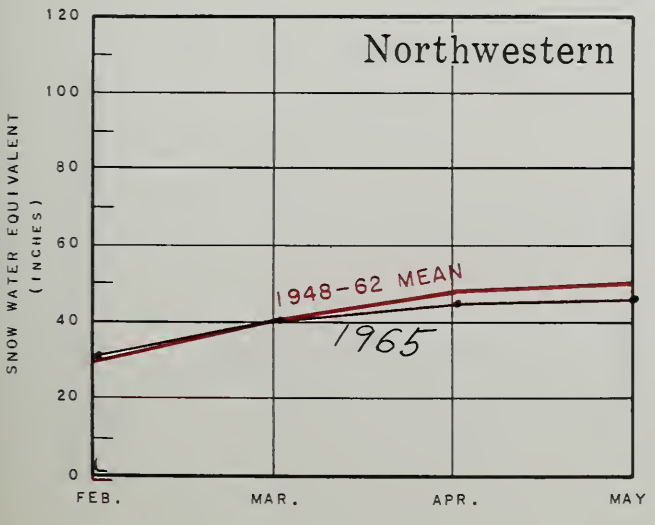
DRAINAGE AREAS

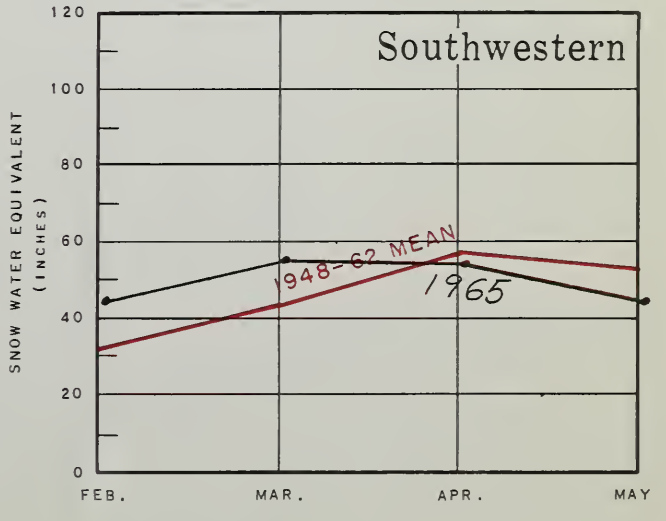










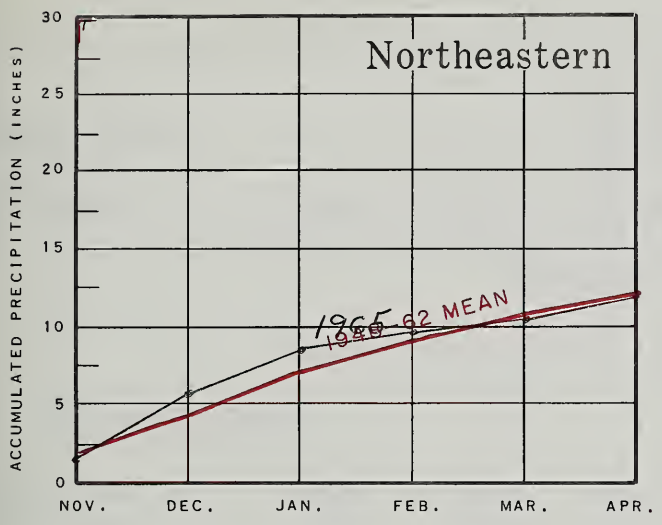


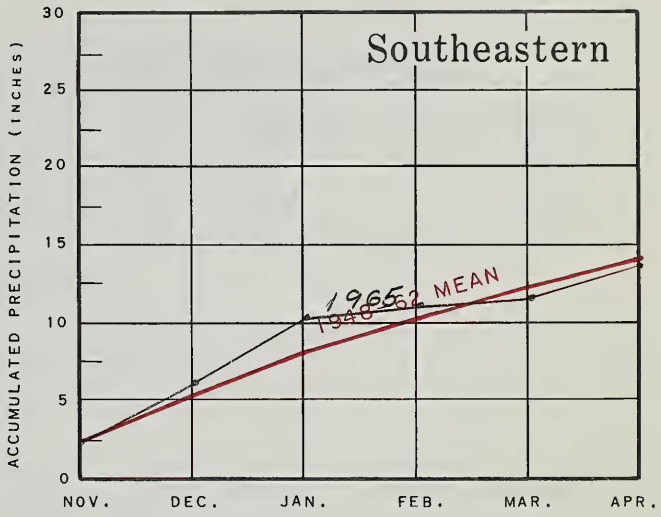
Selected Snow Survey Courses by Soil Conservation Service

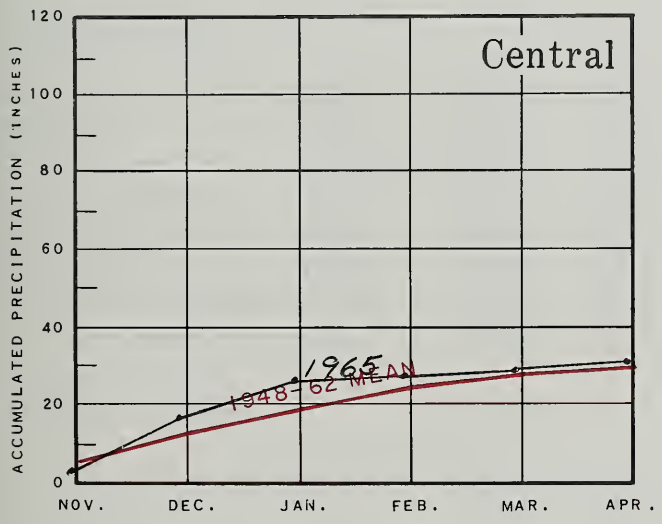
WASHINGTON VALLEY PRECIPITATION

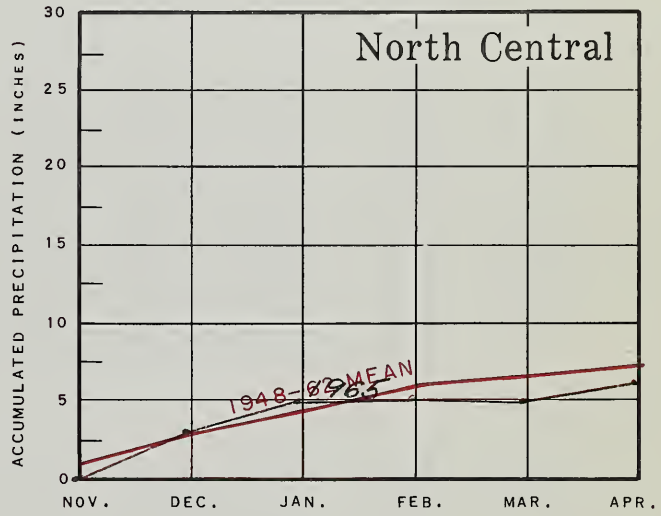
1964 - 1965

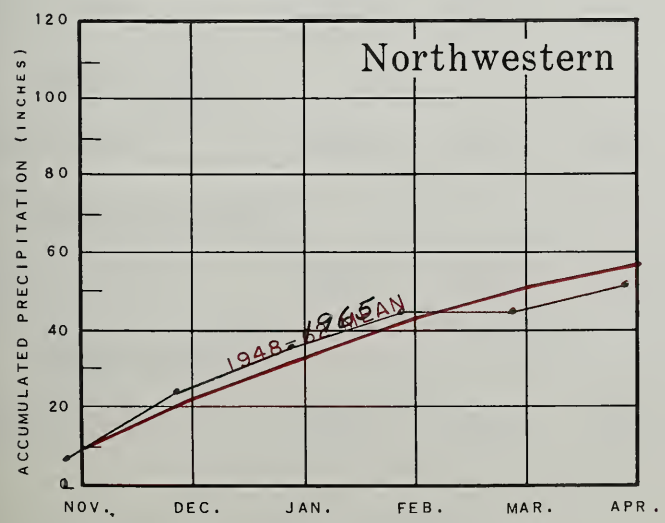
DRAINAGE AREAS

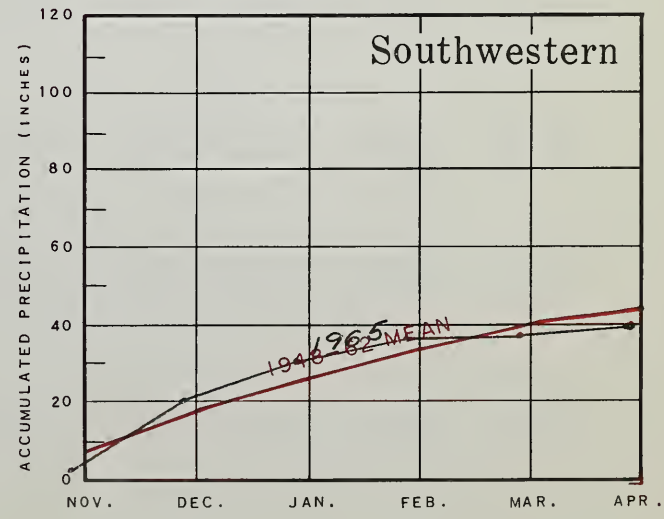












Preliminary Analysis by U. S. Weather Bureau

APPENDIX 1

SNOW DATA MAY 1, 1965

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1965 Date of Survey	1965 Snow Depth (In.)	1965 Water Content (In.)	Past Record Water Content (In.) 1964	1963	1948-62 Avg.
MID-MONTH SURVEYS								
Snow Surveys made on or about April 15, 1965								
WENATCHEE RIVER								
Blewett Pass No. 2	20B2	4270	4/14	34	15.1	15.0	0.0	15.8*
Stevens Pass	21B1	4070	4/12	124	59.2	81.0	30.9	57.0*
YAKIMA RIVER								
#Blewett Pass No. 2	20B2	4270	4/14	34	15.1	15.0	0.0	15.8*
Bumping Lake	21C8	3450	4/13	29	11.1	16.1	4.0	15.2*
Lake Cle Elum	21B14M	2200	4/14	0	0.0	1.9	0.0	2.6*
#Olallie Meadows	21B2	3625	4/13	117	57.6	85.2	20.8	54.3*
#Stampede Pass	21B10	3000	4/20	112	51.7	62.2	23.7	52.0*
Tunnel Avenue	21B8	2450	4/14	51	23.8	40.4	2.6	25.7*
White Pass(Ea. Side)	21C28	4500	4/14	61	27.6	31.1	13.6	31.1*
White Pass(Leech L.)	21C27	4500	4/15	69	32.8	42.2	12.5	--
COWLITZ RIVER								
#White Pass(Ea.Side)	21C28	4500	4/14	61	27.6	31.1	13.6	31.1*
#White Pass(Leech L.)	21C27	4500	4/15	69	32.8	42.2	12.5	--
Ohanapecosh	21C32	2200	4/15	30	14.0	17.5	--	--
Pigtail Peak	21C33	5900	4/15	141	68.9	96,5	40.4	--
GREEN RIVER								
Stampede Pass	21B10	3000	4/20	112	51.7	62.2	23.7	52.0*
SNOQUALMIE RIVER								
Olallie Meadows	21B2	3625	4/13	117	57.6	85.2	20.8	54.3*
SKYKOMISH RIVER								
#Stevens Pass	21B1	4070	4/12	124	59.2	81.0	30.9	57.0*

\# Not directly on this drainage
* Adjusted 1943-57 average

APPENDIX 2

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1965 Date of Survey	1965 Snow Depth (In.)	1965 Water Content (In.)	Past Record Water Content (In.) 1964	1963	1948-62 Avg.
Snow Surveys made on or about April 15, 1965 (Cont'd)								
BAKER RIVER								
Dock Butte	21A11A	3800	4/15	144	67.8	106.6	46.1	--
Easy Pass	21A7A	5200	4/15	183	85.1	117.0	--	--
Jasper Pass	21A6A	5400	4/15	189	84.9	104.1	72.9	--
Marten Lake	21A9A	3600	4/15	166	78.3	107.5	51.1	--
Mount Blum +	21A18a	5800	4/15	168	79.0	99.8	--	--
#Panorama	21A5	4300	4/12	176	84.9	88.9	63.6	--
Rocky Creek	21A12A	2100	4/15	61	28.6	45.2	0.0	--
Schreibers Meadow	21A10A	3400	4/15	133	61.8	80.0	27.3	--
S. F. Thunder Creek	21A14A	2200	4/15	0	0.0	2.6	0.0	--
Watson Lakes	21A8A	4500	4/15	154	67.0	96.8	40.9	--
NOOKSACK RIVER								
Panorama	21A5	4300	4/12	176	84.9	88.9	63.6	--

* Adjusted 1948-62 average
\# Not directly on this drainage
\+ Snow water equivalent estimated from aerial stadia observations

APPENDIX 3

SNOW DATA MAY 1, 1965

DRAINAGE BASIN and SNOW SURVEY	No.	Elev.	SNOW COVER MEASUREMENT 1965 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1964	1963	1948-62 Avg.
UPPER COLUMBIA DRAINAGE								
PEND OREILLE RIVER								
Baree Creek	15B11	5500	4/29	88	45.2	58.8	31.4	49.1
Benton Meadow	16A2	2344	4/30	0	0.0	0.0	0.0	0.0*
Benton Spring	16A3	4900	4/30	26	11.0	21.6	7.8	18.2
Boyer Mountain	17A2	5200	4/26	65	30.4	27.9	17.4	24.1*
Brush Creek	14A4	5000	4/28	26	10.2	12.4	8.2	10.7*
Bunchgrass Meadow	17A1	5000	4/28	61	30.1	33.1	22.5	28.6
Hoodoo Creek	15C1	5900	4/29	114	56.6	55.2	35.5	50.2*
Lookout	15B2	5250	4/27	82	36.6	44.3	25.2	36.4
Nelson	Canada	3050	4/30	13	6.0	13.4	0.0	5.2**
Schweitzer Bowl	16A6	4500	4/30	44	19.7	30.6	--	--
Schweitzer Ridge	16A5	6100	4/30	106	47.5	56.2	--	--
Smith Creek	16A1	4800	4/30	85	44.2	56.4	30.7	47.5*
Winchester Creek	17A3	2970	4/27	7	2.4	0.0	0 0	--
KETTLE RIVER								
Barnes Creek	Canada	5300	4/29	39	18.9	24.0	17.3	--
Butte Creek	18A3	4070	4/26	16	7.1	5.2	0.0	--
Cabin Creek	18A8	3170	4/26	0	0.0	0.0	0.0	--
Carmi	Canada	4100	4/30	0	0.0	0.0	0.0	--
Farron	Canada	4000	4/30	16	7.1	11.9	2.1	--
Goat Creek	18A4	3595	4/26	0	0.0	0.0	0.0	--
Monashee Pass	Canada	4500	4/29	26	12.0	16.3	11.2	12.9**
Old Glory Mountain	Canada	7000	4/30	60	28.4	35.9	20.3	29.2**
Snow Caps Creek	18A5	2150	4/26	0	0.0	0.0	0.0	--
Snow Caps Trail	18A6	2720	4/26	0	0.0	0.0	0.0	--
Summit G. S.	18A7	4600	4/26	18	7.2	6.4	2.9	--
SPOKANE RIVER								
Copper Ridge	16B2	4800	4/29	54	27.6	44.0	9.0	29.3
Forty-nine Meadows	15B3	5000	Not Measured			40.0	16.8	32.3
4th of July Summit	16B3	3100	4/27	0	0.0	3.2	0.0	--
#Lookout	15B2	5250	4/27	82	36.6	44.3	25.2	36.4
Lower Sands Creek	16B1	3400	4/29	39	16.6	28.8	2.2	14.2

\# Not directly on this drainage
* Adjusted 1948-62 average
** Average for years of record

APPENDIX 4

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1965 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1964	1963	1948-62 Avg.
SPOKANE RIVER (Cont'd)								
Outlaw Creek	15B12A	3750	Not Measured			16.5	0.0	--
Granite Peak	15B13A	6000	Not Measured			53.3	--	--
Medicine Ridge	15B4A	6150	Not Measured			52.7	--	--
OKANOGAN RIVER								
Aberdeen Lake	Canada	4300	4/29	0	0.0	3.3	0.0	1.5**
Blackwall Mountain	Canada	6250	4/29	74	33.9	48.4	33.3	37.1**
Boulleau Creek	Canada	5000	4/24	25	8.7	10.6	4.0	6.9**
Brookmere	Canada	3200	5/1	6	2.4	9.1	0.0	5.5**
#Pasayten Meadows	20A2	5000	4/27	71	33.2	37.1	17.2	33.7*
Hamilton Hill	Canada	4900	4/30	24	9.3	18.0	8.6	10.6**
#Harts Pass	20A5A	6500	4/30	101	47.5	52.8	44.2	51.6
Lost Horse Mountain	Canada	6300	4/30	33	10.5	13.2	7.5	9.4**
Modulicon	Canada	4200	4/28	7	2.8	4.9	0.8	2.9
Missezula Mountain	Canada	5100	4/29	28	8.5	9.2	0.0	4.3**
Mission Creek	Canada	6000	4/30	48	21.1	23.9	18.4	21.3**
Monashee Pass	Canada	4500	4/29	26	12.0	16.3	11.2	12.9**
Mutton Creek No. 1	19A1	5700	4/25	21	8.5	8.0	8.0	9.9
Mutton Creek No. 2	19A4	6000	4/25	41	14.6	12.2	14.1	15.3
Nicker Plate Mountain	Canada	6200	4/29	28	8.1	12.8	5.8	8.3**
Postill Lake	Canada	4500	4/29	11	4.1	7.8	3.4	6.6**
Rusty Creek	19A3	4000	4/25	0	0.0	0.0	0.0	1.5*
Salmon Meadows	19A2	4500	4/25	11	3.8	3.2	3.5	5.1
Silver Star Mountain	Canada	6050	5/3	50	22.0	32.4	19.6	23.9**
Trout Creek	Canada	4700	4/30	11	3.7	6.8	2.1	4.9**
METHOW RIVER								
Harts Pass	20A5A	6500	4/30	101	47.5	52.8	44.2	51.6
#Mutton Creek No. 1	19A1	5700	4/25	21	8.5	8.0	8.0	9.9
#Mutton Creek No. 2	19A4	6000	4/25	41	14.6	12.2	14.1	15.3
#Rusty Creek	19A3	4000	4/25	0	0.0	0.0	0.0	1.5*
#Salmon Meadows	19A2	4500	4/25	11	3.8	3.2	3.5	5.1

\# Not located directly on this basin
* Adjusted 1948-62 average
** Average for years of record

APPENDIX 5

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1965 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1964	1963	1948-62 Avg.
CHELAN LAKE BASIN								
Rainy Pass	20A9	4780	4/30	94	42.2	51.1	33.2	45.1*
Safety Harbor	20A30A	6300	4/29	61	24.7	--	--	--
ENTIAT RIVER								
Brief	20B19	1600	4/25	0	0.0	0.0	0.0	--
WENATCHEE RIVER								
Berne-Mill Creek	21B23	2925	4/28	40	18.2	33.7	0.0	--
Blewett Pass No. 2	20B2	4270	4/30	9	4.3	13.5	0.0	10.4
Chiwaukum G. S.	20B16	1810	4/28	0	0.0	0.4	0.0	--
#Fish Lake	21B4	3371	4/30	37	17.6	37.4	8.4	26.2*
Lake Wenatchee	20B5	1970	4/28	0	0.0	0.0	0.0	--
Leavenworth R. S.	20B17	1127	4/26	0	0.0	0.0	0.0	--
Merritt	20B18	2140	4/28	0	0.0	4.6	0.0	--
Stevens Pass	21B1	4070	4/28	106	54.7	79.2	29.3	54.8*
SQUILCHUCK CREEK								
Beehive Springs	20B3	4400	4/26	0	0.0	0.0	0.0	--
Scout-A-Vista	20B4	3400	4/26	0	0.0	0.0	0.0	--
STEMILT CREEK								
Jump-Off	20B8	4450	4/26	0	0.0	0.0	0.0	--
Stemilt Slide	20B6	5000	4/26	7	2.8	0.0	4.8	--
Upper Wheeler	20B7	4400	4/26	0	0.0	0.0	0.0	--
YAKIMA RIVER								
Ahtanum R. S.	21C11	3100	4/30	0	0.0	0.0	0.0	0.0*
Big Boulder Creek	21B9	3200	4/30	0	0.0	15.9	0.0	5.8*
#Blewett Pass No. 2	20B2	4270	4/30	9	4.3	13.5	0.0	10.4
Bumping Lake	21C8	3450	4/29	12	4.5	12.8	1.5	10.5
Fish Lake	21B4	3371	4/30	37	17.6	37.4	8.4	26.2*
Lake Cle Elum	21B14M	2200	4/28	0	0.0	0.0	0.0	--

\# Not directly on this drainage
* Adjusted 1948-62 average

APPENDIX 6

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1965 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1964	1963	1948-62 Avg.
YAKIMA RIVER (Cont'd)								
Morse Lake	21C17	5400	4/30	116	53.2	66.7	43.7	70.8*
#Olallie Meadows	21B2	3625	4/27	91	49.1	87.2	17.3	48.9*
#Satus Pass	20D1	4030	4/29	0	0.0	4.7	0.0	--
#Stampede Pass	21B10	3000	4/30	85	47.1	66.1	25.6	47.9*
Tunnel Avenue	21B8	2450	4/28	30	15.1	37.4	0.0	19.5
White Pass(Ea. Side)	21C28	4500	4/30	45	22.6	32.1	14.5	31.2*
White Pass(Leech L.)	21C27	4500	5/1	48	22.8	42.6	14.1	--
AHTANUM CREEK								
Ahtanum R. S.	21C11	3100	4/30	0	0.0	0.0	0.0	0.0*
LOWER COLUMBIA DRAINAGE								
KLICKITAT RIVER								
Satus Pass	20D1	4030	4/29	0	0.0	4.7	0.0	--
WHITE SALMON RIVER								
Cultus Creek	21C12	4000	4/29	73	38.4	55.4	23.0	52.1*
#Surprise Lakes	21C13A	4250	4/29	79	41.8	63.4	23.9	54.0*
WIND RIVER								
Oldman Pass	21D19	3100	4/29	17	9.4	19.6	20.0	8.8*
LEWIS RIVER								
Blue Lake +	21C22a	4800	5/2	136	70.7	92.0	65.2	--
Bob's Trail	21C21	2200	4/28	4	2.1	11.5	0.0	--
Calamity Ridge +	22D1a	2500	5/2	0	0.0	2.2	0.0	--
Council Pass +	21C18a	4200	5/2	48	25.0	50.5	15.9	35.7*
#Cultus Creek	21C12	4000	4/29	73	38.4	55.4	23.0	52.1*
Divide Meadow +	21C29a	5600	5/2	116	58.0	63.5	47.5	--
Grand Meadow	21C25	3500	4/28	38	19.7	25.4	9.5	--
Lone Pine Shelter	21C26	3800	4/27	77	40.6	53.2	23.1	--

\# Not directly on this drainage
* Adjusted 1948-62 average
\+ Snow water equivalent estimated from aerial stadia marker

APPENDIX 7

DRAINAGE BASIN and SNOW COURSE	No.	Elev.	SNOW COVER MEASUREMENT 1965 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1964	1963	1948-62 Avg.
LEWIS RIVER (Cont'd)								
Marble Mountain +	22C5a	3200	5/2	15	7.8	50.1	4.8	--
New Muddy River	22C6	2000	4/27	0	0.0	0.0	--	--
Oldman Pass	21D19	3100	4/29	17	9.4	19.6	2.0	8.8*
Plains of Abraham +	22C1a	4400	5/2	103	53.6	75.4	43.6	83.4*
Smith Creek Road	22C4	2100	4/26	0	0.0	0.0	0.0	0.0
Spencer Meadow +	21C20a	3400	5/2	0	0.0	27.3	0.0	--
Surprise Lakes	21C12A	4250	4/29	79	41.8	63.4	23.9	54.0*
Table Mountain +	21C24a	4200	5/2	63	32.8	51.9	27.0	--
Timbered Peak +	21D18a	3000	5/2	0	0.0	20.7	0.0	--
COWLITZ RIVER								
Ohanapecosh	21C32	2200	5/1	4	2.2	10.6	--	--
Pigtail Peak	21C33	5900	5/1	131	64.9	97.2	45.0	--
Plains of Abraham +	22C1a	4400	5/2	103	53.6	75.4	43.6	83.4*
#White Pass(Ea.Side)	21C28	4500	4/30	45	22.6	32.1	14.5	31.2*
#White Pass(Leech L.)	21C27	4500	5/1	48	22.8	42.6	14.1	--
PUGET SOUND DRAINAGE								
WHITE RIVER								
#Morse Lake	21C17	5400	4/30	116	53.2	66.7	43.7	70.8*
GREEN RIVER								
Stampede Pass	21B10	3000	4/30	85	47.1	66.1	25.6	47.9*
SNOQUALMIE RIVER								
Olallie Meadows	21B2	3625	4/27	91	49.1	87.2	17.3	48.9*
SKYKOMISH RIVER								
#Stevens Pass	21B1	4070	4/28	106	54.7	79.2	29.3	54.8*
SKAGIT RIVER								
Beaver Creek Trail	21A4	2200	4/26	11	4.8	8.4	0.0	6.6*
Beaver Pass	21A1	3680	4/27	62	29.3	41.9	13.7	37.1

\# Not directly on this drainage
* Adjusted 1948-62 average

APPENDIX 8

DRAINAGE BASIN and SNOW COURSE	No	Elev.	SNOW COVER MEASUREMENT 1965 Date of Survey	Snow Depth (In.)	Water Content (In.)	Past Record Water Content (In.) 1964	1963	1948-62 Avg.
SKAGIT RIVER (Cont'd)								
Devils Park	20A4	5900	4/30	92	43.8	55.3	38.4	49.4*
Freezeout Cr. Trail	20A1	3500	4/30	20	9.0	13.4	0.8	9.4*
Freezeout Meadows	20A2	5000	4/27	71	33.2	37.1	17.2	33.7*
#Harts Pass	20A5	6500	4/30	101	47.5	52.8	44.2	51.6
Lake Hozomeen	21A2	2600	4/27	14	6.0	10.4	0.0	6.3*
Meadow Cabins	20A8	1900	4/30	0	0.0	5.1	0.0	2.8*
#Rainy Pass	20A9	4780	4/30	94	42.2	51.1	33.2	45.1*
Thunder Basin	20A7	4200	4/30	60	25.5	34.0	14.1	29.3*
BAKER RIVER								
Dock Butte	21A11A	3800	5/1	135	65.6	110.1	46.1	--
Jasper Pass	21A6A	5400	5/1	189	84.0	121.0	76.6	--
Koma Kulshan	21A17	800	5/1	0	0.0	0.0	0.0	--
Marten Lake	21A9A	3600	5/1	158	73.6	115.8	48.5	--
#Panorama	21A5	4300	4/28	163	83.6	99.8	62.0	--
Rocky Creek	21A12A	2100	5/1	34	16.0	35.7	0.0	--
Schreibers Meadow	21A10A	3400	5/1	118	57.8	92.3	36.6	--
S. F. Thunder Creek	21A14A	2200	5/1	0	0.0	4.8	0.0	--
Sulphur Creek	21A13	1600	5/1	0	0.0	14.1	0.0	--
Three Mile Creek	21A15	1600	5/1	0	0.0	0.0	0.0	--
Watson Lakes	21A8A	4500	5/1	144	64.8	98.9	44.5	--
NOOKSACK RIVER								
Panorama	21A5	4300	4/28	163	83.6	99.8	62.0	--
O L Y M P I C P E N I N S U L A								
DUNGENESS RIVER								
Deer Park	23B4	5200	4/27	47	18.7	26.9	--	26.6*
MORSE CREEK								
Deer Park G. S.	23B13	4850	4/27	21	10.6	New Course		
Morse Creek	23B12	5425	4/30	75	33.7	59.5	--	--
ELWHA RIVER								
Hurricane	23B3	4500	4/30	48	20 5	35.7	--	31.5*

\# Not directly on this drainage
* Adjusted 1948-62 average

Agencies Assisting with Snow Surveys

GOVERNMENT AGENCIES

Canada:

Department of Lands, Forests and Water Resources,
Water Resources Service, British Columbia

States:

Washington State Department of Conservation
Washington State Department of Natural Resources

Federal:

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    Corps of Engineers
U. S. Department of Agriculture
    Forest Service
U. S. Department of Commerce
    Weather Bureau
U. S. Department of the Interior
    Bonneville Power Administration
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    Geological Survey
    National Park Service

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Washington Water Power Company

OTHER PUBLIC AGENCIES

Okanogan Irrigation District
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Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

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